



**User's Guide**

**MSA Welding Book**



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# 1 Copyright

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## 2 General

### 2.1 Introduction

The *MSA Welding Book* is a PC application useful to process CSV files created by electro-fusion MSA3x0 machines and pictures taken in the work field to create PDF files containing the protocol details.

#### 2.1.1 Features

MSA welding book collects as input a CSV file containing the fusion protocols and a set of pictures for each welding and creates a PDF file reports with the following characteristics:

- detailed welding parameters of each protocol
- automatic association between pictures and protocols
- addition of user notes for each protocol (optional)
- welding street address (if GPS coordinates were available)
- map of the welding area (if GPS coordinates were available)

Moreover the application main screen gives a quick summary of the number of weldings done by the MSA units, with details for each welding about the status, date, time and number of related pictures.

### 2.2 System requirements

*MSA Welding Book* application can run on any computer under WINDOWS XP / VISTA / 7 and successors with a Java Virtual Machine and a PDF reader installed.

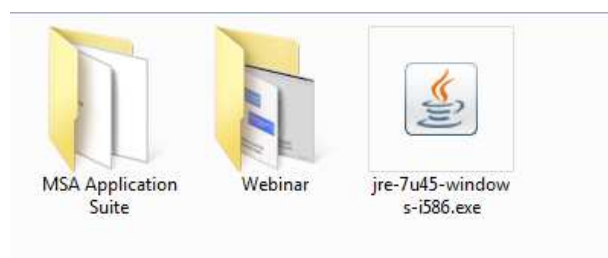
If a Java Virtual Machine is already installed please check the version is at least 7.0. Otherwise it should be downloaded from the following link:  
<http://www.java.com/download/>

The PDF reader supported are Adobe Acrobat Reader (at least version 8) and Foxit Reader (at least version 6).

### 3 Software configuration

The software application is provided as CD and doesn't need to be installed.

Just open the CD content and copy locally on the PC the folder named **MSA Application Suite** in your preferred destination. Open it and double clicking on **MSA Application Suite.jar** file the application main screen will be shown.



In the CD the user can find also a Java Virtual Machine installer and a folder named Webinar containing some video tutorials.

## 4 Hardware configuration

### 4.1 Date and Time Configuration

To obtain the best result the user has to check the PDA configuration regarding camera and date/time. The PDAs supported at the release date are:

- Samsung smartphone and tablet
- iPhone 4
- iPhone 5
- Nokia smartphone
- LG smartphone

It's kindly recommended to test the device before starting the pictures acquisition using the MSA Welding Book functionality described in chapter 6.12.

As first, the user has to set up the PDA date/time configuration, setting them to the current date/time.

Tapping on the setting icon, open the configuration menu.



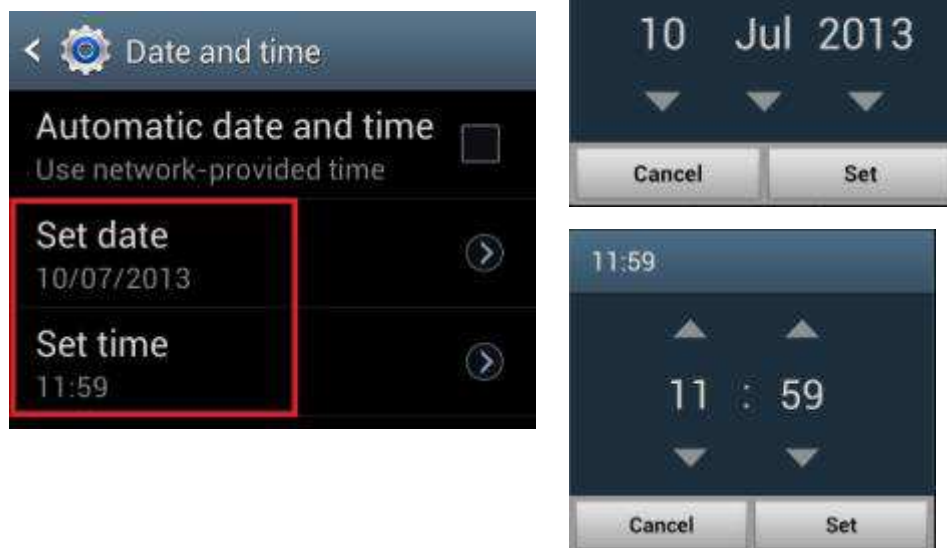
Scroll up to the date and time setting



If the PDA has a GSM SIM card the user can enable the automatic date and time detection.



If not, set up manually the values tapping on the *Set date* and *Set time* area.



The new value becomes valid after the Set button is pressed.



To obtain the right association between welding parameters and pictures, the MSA 340 machine must be synchronized with the PDA.

Therefore, please check the MSA3x0 firmware version and date/time settings.

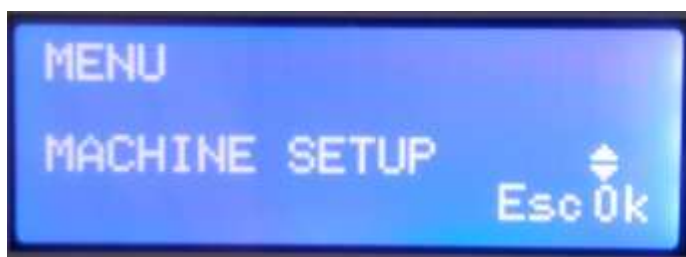
The firmware version must be at least V2.09. If the user is working with an older version, the MSA Welding Book Application can't import the welding information. The firmware version is shown at each machine start up as first screen.

The user can see the date and time parameters set just turning the machine on and awaiting for the "Connect Fitting" screen.

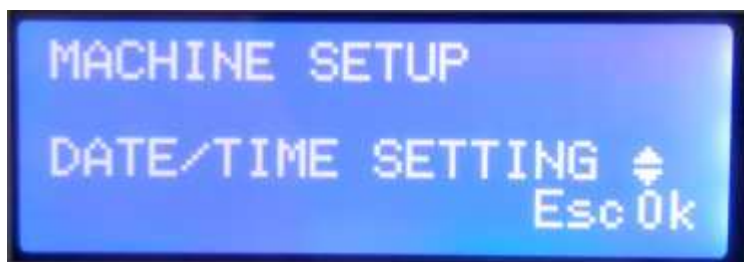


If date/time parameters are not well synchronized (delay of less than 1 minute), modify them in the SETUP MACHINE sub-menu.

Turn on the machine and enable the Administrator Extended Menu. From the "Connect Fitting" screen press the button MENU and open the "Machine Setup" submenu pressing START/OK.



With the Up/Down arrow scroll the submenu to the entry "Date/Time Setting" and press the START/OK button.



Using the arrows Up/Down/Left/Right, set up the correct values and confirm it using the START/OK button. The new parameter are valid after their confirmation.

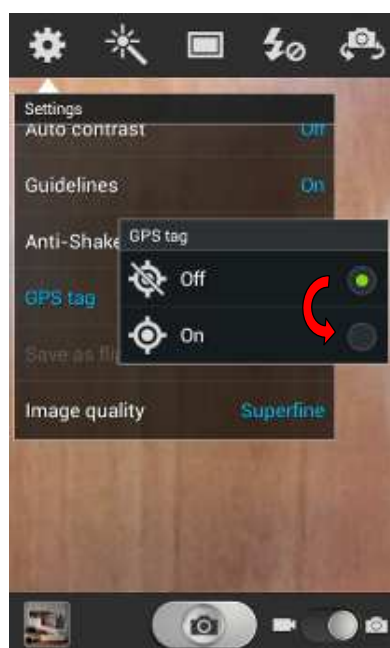
Another configuration useful to obtain better results is the association for each pictures of the GPS coordinates.

The procedure to enable the GPS tag is the following:

- Open the camera and check if the GPS logo is shown on the display as in the picture below



- In negative case tap on the gear and open the option menu. Scroll to the item GPS tag and switch the value to On then close the menu.



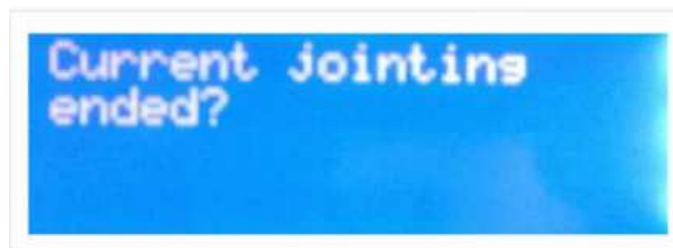
- Now the GPS logo will be shown in the camera main screen. Until the logo is blinking the GPS is trying to detect the geographical position then it becomes fix.

Information: the PDA screenshot showed in the examples above could be different from what the user can see on device in use. They are reported on this manual to be used as reference.

## 4.2 MSA Configuration

The *MSA Welding Book* application combine the information related to the weldings reported in the CSV file produced by the MSA machine and the pictures taken from the PDA in order to create a PDF report. For a correct association it's necessary to bound the welding and to define when a fusion process is finished and the preparation of the next one is ready to start.

To make possible this discrimination, after each fusion process, a screen will be shown, asking for a welding end confirmation.



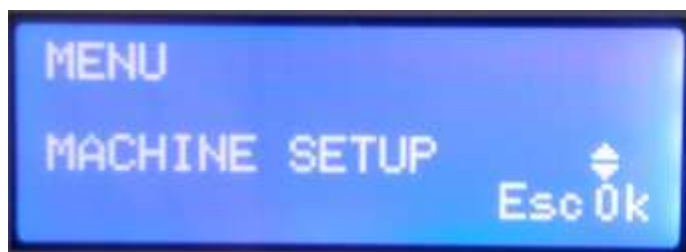
Pressing the START/OK button the operator will confirm that all the operations regarding the current jointing are finished. All the picture taken from that moment will be referred to the next welding.

The user can enable or disable this features following this steps:

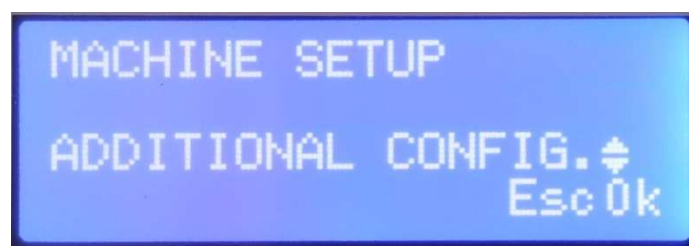
- Turn on the machine and read the Administrator Barcode in order to activate the Administrator Extended menu



- On the *Connect Fitting* screen press the MENU button and open the *Machine Setup* settings

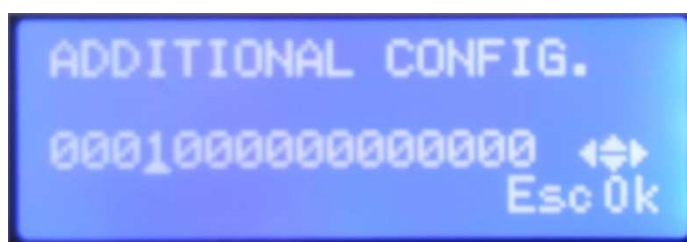


- Using the UP/DOWN ARROW, scroll up to the *Additional Configuration* menu and open it



- A string composed by 16 characters will be shown:
  - setting the 4<sup>th</sup> bit to one the user can activate the feature
  - setting the 4<sup>th</sup> bit to zero the feature will be disabled.

Dont' modify the other values.



- Press the START/OK button to confirm

## 5 Workflow

This chapter will show the operating workflow to follow for the creation of the files needed from the *MSA Welding Book* application.

In first the user has to check if the MSA machine and the PDA are correctly configured, refer to Chapter 4.

Move the MSA machine and the PDA to the welding area and perform the fusions as usual.

Collect photos with the PDA during welding preparation, fusion and cooling time activities in order to document: proper pipe scraping/cleaning, usage of clamps and aligner, usage of the right fitting, presence of the aligner during cooling time or what needed.

At the end of the day or when necessary, the user has to export the CSV file with the fusions summary on a USB stick.

To perform this operation connect a USB stick in the MSA's USB port located on its rear side. From the *Connect Fitting* screen press the MENU button and open the *Data Retrieval* sub menu. Here scroll to *Export Protocols*, open the submenu, choose *CSV Format* and press the START/OK button to create the file.

From a PC on which the *MSA Application Suite* is installed, create a folder in a desired location (ex. Desktop or Document folder) and save into the CSV file created by the MSA and all the pictures taken with the PDA for that machine.

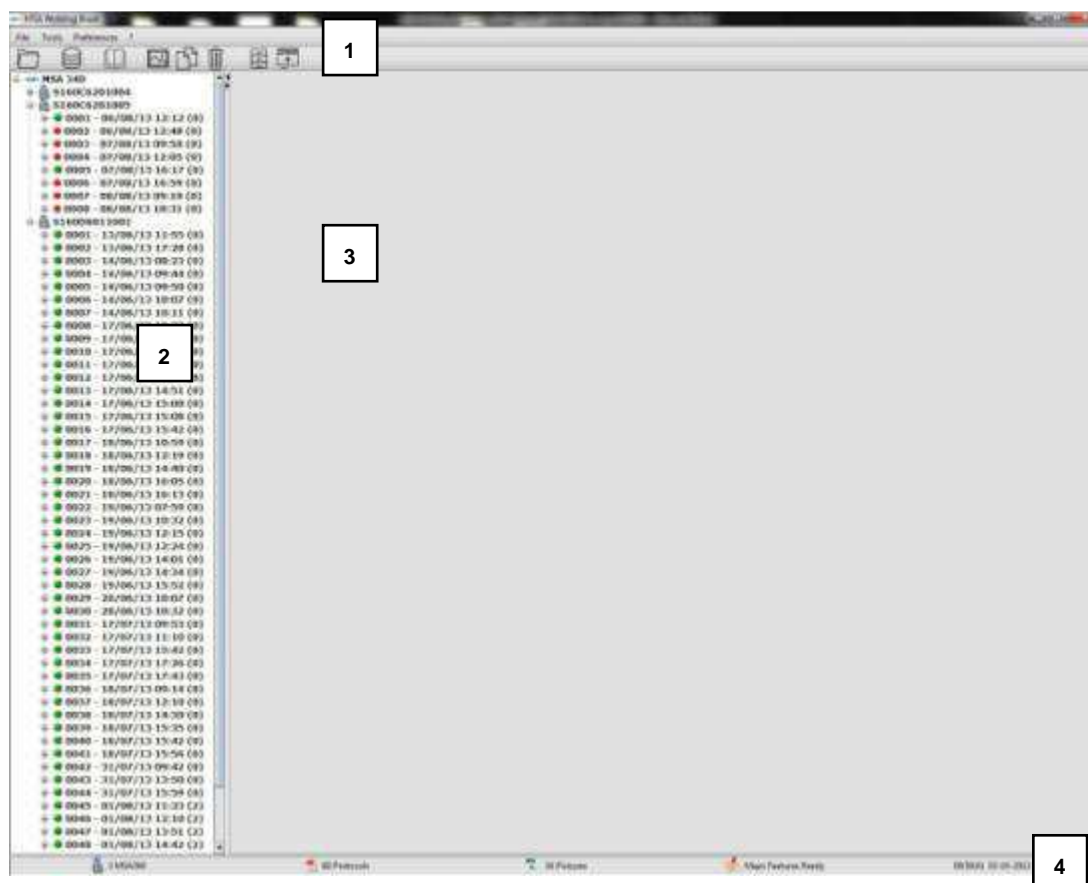
Don't save more than one CSV file for each folder, if the operators are working with several machines create a folder for each one.

The files are now ready to be imported from the *MSA Welding Book* application. The instructions related to the import are reported in Chapter 6.

## 6 Application description

### 6.1 Overview

When the *MSA Welding Book* is double clicked, the following window will appear.



The main window is divided in four areas:

1. Menu Bar
2. Tree Area
3. Content Area
4. Bottom Area

#### 6.1.1 Menu bar

The Menu Bar contains all the configuration and action menus. The user can find all the icons to:

- import new welding protocols and pictures,

- apply filters by range of date, operator code, job code, serial number, good welding/error welding,
- add personalized notes to each fusion,
- add manually a picture to a fusion protocol,
- delete a picture from a protocol,
- move picture between protocols,
- check if a new device is compatible with the application,
- perform data management activities, like export/save and restore data,
- select the machines to be shown in the Tree Area,
- set the report information saved in the PDF report,
- set the interface and the PDF language,
- set the network proxy setting,
- set the map parameters to define the map format saved in the PDF report.

### 6.1.2 Tree area

In the Tree Area the user can see an expandable list with all the MSA340 machines the CSV has been imported, sorted by serial number. The general structure of each element is:

- Machine serial number
  - Welding number – date time (number of related pictures)
    - Protocol details
    - Picture 1
    - Picture 2
    - Picture 3
    - Picture 4

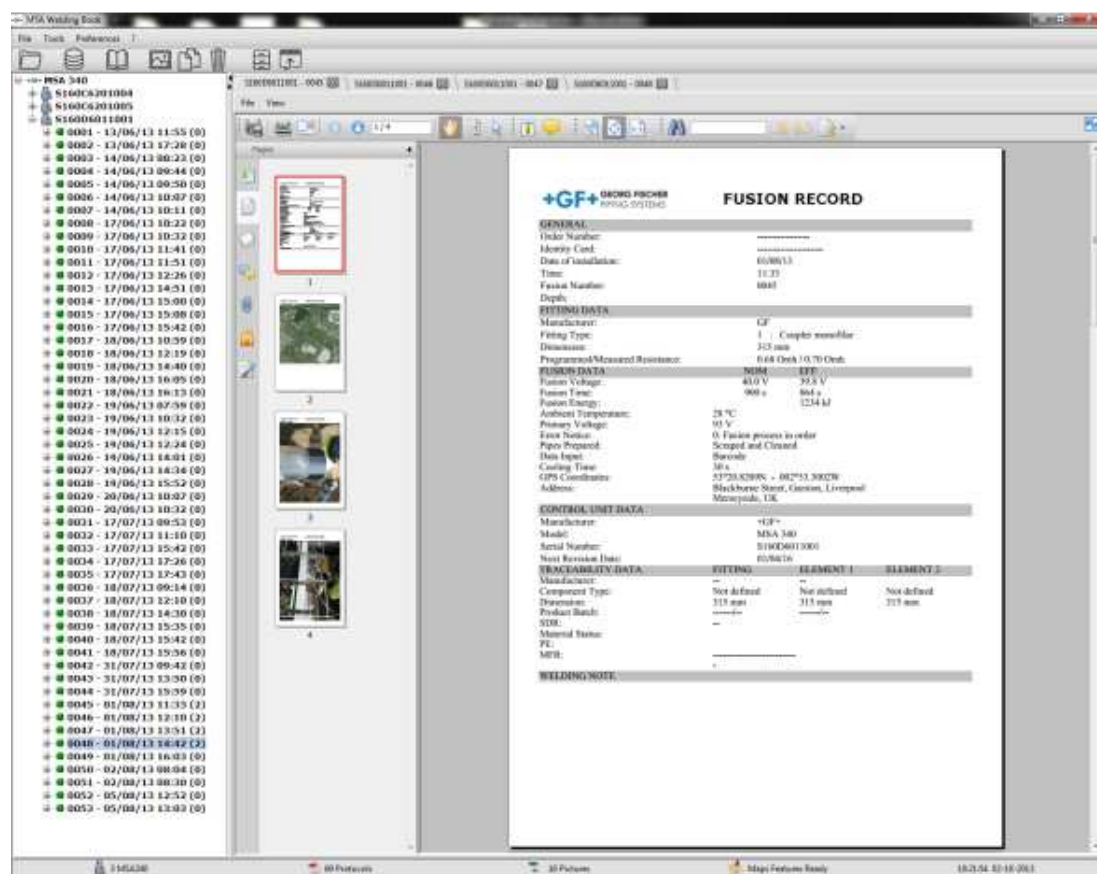
- Picture 5
- User Note

By double-clicking or pressing the Enter button on the item "Protocol details", the user can see the welding information, as PDF document, in the Content Area. The same result can be reproduced pressing the Enter button on the item "Welding Number".

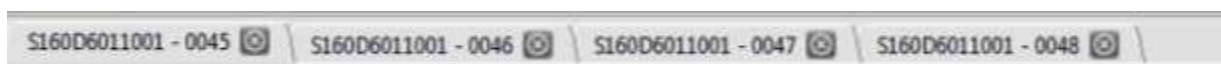
Each welding is identified by a green or a red bullet: green if it's correctly finished, red in case of errors reported by the MSA unit.

### 6.1.3 Content area

The content area is dedicated to data, picture and map view.



If more than one content is open at the same time, they will be organized by internal page, named as: machine serial number and protocol number.





In the example above, four tabs are opened at the same time, all belonging to the MSA machine with serial number S160D6011001. The first tab shows the details related to the welding 45, the second the details related to the welding 46 and so on.

The PDF generated from the application can contain one or more pages depending on the user preferences and the available data. The first page always shows the welding protocol, which can have two more information compared to standard protocol generated by the MSA:

- the welding street address, if the GPS coordinates were captured and if an internet connection is available when the PDF is created,
- the user note if these have been included.

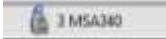


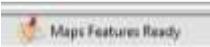
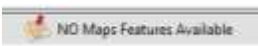
If the GPS coordinates were captured and if an internet connection is available when the PDF is created, the second page shows the map of the welding area. In the next pages, if available, there will be the pictures related to that fusion protocol.

The time needed for the creation of reports containing address and/or maps depends on the network configuration and internet connection.

All reports can be printed and exported as PDF file.

#### 6.1.4 Bottom area

The bottom area summarizes the main information about the user activity. It's divided into five areas containing:

- Number of imported MSA340 machines: 
- Number of imported protocols: 
- Number of imported pictures: 
- Maps features availability:  or 
- Current date and time.

## 6.2 Import CSV files and pictures

Opening for the first time the *MSA Welding Book* the Tree Area will be empty and no operations will be possible.

The first action the user has to do is importing a CSV file created by a MSA340 machine combined with the pictures taken by the operator. To perform this operation just save in the same folder (ex. Created on desktop) the CSV file and the pictures associated to the weldings done by that MSA340.

Then click on the import button in the Menu Bar: a window will be shown. Select the CSV file from the folder created before; the application will analyze the information from the machine with the pictures and will import all the data. When the operation is finished, the imported protocols will be browse-able in the Tree Area.

Each folder can contain only one CSV file. Do not save in the same place two different files and/or pictures taken from two different MSA340.

The maximum number of pictures associated to each fusion protocol is five. If more than five pictures are detected for a single protocol, an info window will advise the user and only five were imported.

During the import, the application will check the MSA340 serial number, in order to verify the compatibility with the information already stored for that machine. Due to regular maintenance, the protocol memory could be erased and the welding enumeration restarted. In this case the risk is to overwrite existing data damaging the database integrity. In this situation, the application will alert the user and let him to decide if overwrite the old protocols or stop the import.

## 6.3 Filter

The user can be interested only to specific information, hiding the rest. Using the filter function the user can extract from the database only the needed information. The filters available are the following:

- Date range: select all the protocols between two dates,
- Operator code,
- Job code (project number),
- Machine serial number,
- Good weldings/weldings containing an error



Double-clicking on a day, the date will be set. Setting only the field "From date:" all the welding started since that date will be shown as result. Setting up only the field "To date:", all the welding started before that date will be shown as result. Setting up both parameters, the filter result will contains the welding realized between the two dates.

The last column is useful to filter weldings looking at the error code. By clicking on the radio button "Y" the error check will be enabled on all the error code, as result will be shown all the weldings finished with error. If it's necessary to focus the filter on one or more error codes it's possible to choose them from the list below.

When the parameters selection is finished, pressing the button "Apply", the application will look at the all the weldings searching for results. Using the button "Clear field" all the selected parameters will be cleaned up for a new search.



The table shown as result is organized in rows for each welding reported.

Serial Number	Welding Number	Operator Code	Job Code	Welding Date	Welding Time	Error Code	Nr of Pictures	PDF	Open PDF
5180C301004	0001	EGROU/ITA/GF	0	06/08/13	11:12	0	1		<input type="checkbox"/>
5180C301004	0002	EGROU/ITA/GF	0	06/08/13	11:48	13	1		<input type="checkbox"/>
5180C301004	0003	EGROU/ITA/GF	0	07/08/13	09:50	4	1		<input type="checkbox"/>
5180C301004	0004	EGROU/ITA/GF	0	07/08/13	12:05	3	1		<input type="checkbox"/>
5180C301004	0005	EGROU/ITA/GF	0	07/08/13	16:17	0	1		<input type="checkbox"/>
5180C301004	0006	EGROU/ITA/GF	000	07/08/13	16:59	3	1		<input type="checkbox"/>
5180C301004	0007	EGROU/ITA/GF	0000	08/08/13	09:10	3	1		<input type="checkbox"/>
5180C301004	0008	EGROU/ITA/GF	0	08/08/13	10:31	3	1		<input type="checkbox"/>
5180C301004	0009	EGROU/ITA/GF	0	11/08/13	10:31	3	1		<input type="checkbox"/>
5180C301004	0010	EGROU/ITA/GF	0	11/08/13	11:00	3	1		<input type="checkbox"/>
5180C301004	0011	EGROU/ITA/GF	0	11/08/13	12:00	3	2		<input type="checkbox"/>

The first 8 columns shown several welding parameters: machine serial number, welding number, operator code, job code, welding date, welding time, error code, number of pictures related.

The ninth column shows a PDF icon and just clicking on it, the related PDF report will be opened in a new internal page.

The last column shows a checkbox: it's useful to select the weldings to be printed in a multi protocol PDF report. After selecting those of interest, clicking on the checkbox, pressing the "Open PDF" button, a new internal page will pop up.



Using the "Select All" and "Unselect All" buttons, all the rows will be selected to be shown in the PDF report or unselected.

## 6.4 Add Note

Using the “Add Note” function, the user can add notes to each welding. Selecting the welding number from the Tree Area and pressing the Add Note button the following window will be shown.



Here the user can write all the notes related to that single welding with a limit of 1500 characters.

If a note already exist, the user can modify or remove the inserted text. To modify it just update the text and press the “Confirm” button, to remove it delete the text and press the “Confirm” button.

As quick indication, weldings for which a note is saved will have a more icon the tree menu. In this way it will be possible to know if a note exists without opening the PDF.

## 6.5 Add Picture

Using the “Add Picture” function, the user can add a picture (in JPEG format) to a welding protocol. Pressing the Add Picture icon a new window will be shown. As first operation the user has press the “Browse” button to choose the picture to import. As the picture is selected a small thumbnail will be shown and the menu with the available machine serial number list will be enabled.



When a specific welding number is selected, pressing the confirmation button, the picture will be imported (if there were not yet 5 associated to that fusion protocol).

## 6.6 Move picture

The merge operation between pictures and related protocol is done automatically by the application during the file import phase. In specific case (ex: picture taken too late or too early, many welding process in a short time) the association could be affected by errors and a picture could be referred to the incorrect protocol.

To adjust this drawback, the application allows the exchange of pictures between protocols. Pressing on the Move Picture icon a new window will be shown. Here the user has to select the serial number and the welding number of the picture to move. As this operation is finished, a preview of all the pictures related to the selected welding is shown. Here the user has to choose the picture to move and the destination protocol. As the operation is done, pressing the confirmation button the exchange will be executed.

In the following picture is shown an example in which a picture is moved from welding 11 to welding 5 for the machine with serial number S160C6201004.



## 6.7 Remove picture

It's possible that some imported pictures are not relevant for the welding. The user can remove picture at any time with the "Remove Picture" function. Pressing the Remove Picture icon a new window will be shown. Here the user has to choose the machine serial number and the welding number of the picture to be deleted. When this selection will be done, a preview of all the pictures available for that welding will be displayed. Here the user has to choose the picture to be removed and press the confirm button. In the following picture is shown an example in which a picture is removed from the welding 11 for the machine with serial number S160C6201004.



## 6.8 Export\Restore data base

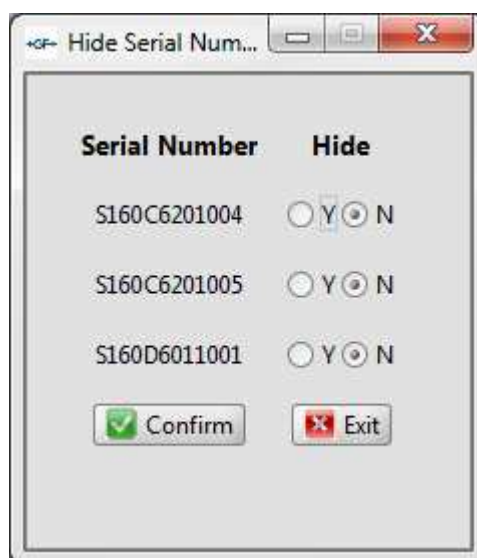
If the user needs to save the data base created or send it by mail, he can use the export function. The export process, in a folder selected by the user, will create a file containing the database currently created.

The file is then ready to be saved as backup copy and to be imported from the application in a different PC.

To import the entire database the user has to specify the file created with the Export functionality. Pay attention that this action will remove all data previously stored in the application.

## 6.9 Hide Machines

When the amount of MSA machines and protocols is increasing, it might be complicated to manage it from the Tree Area. Opening the menu "Preferences" -> "Hide serial number" a list of all the machines, organized by serial number, will be shown. Here the user can choose which machines to hide.



## 6.10 PDF Report Information

The PDF welding report (single or multiple) by default contains welding parameters and, if available, welding address, user note, maps and pictures. The user can be interested only in some of these. Opening the menu "Preferences" -> "PDF Options" the following window will be shown:



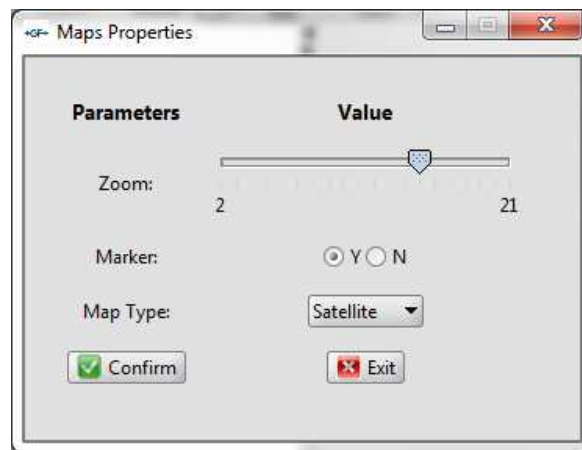
Here the user, just selecting for each row the value, can choose if they must appear in the PDF or not: user note, welding street address, welding area map and pictures.



The last parameter to be set is related to the picture resolution. This parameter influences the size of the PDF generated from the application. If we consider a Multi-Protocol report with more than one picture for each protocol, the file dimension could be high and could be impossible to send it by e-mail. Changing the resolution to Medium or Low the file dimension decrease.

## 6.11 Map Parameters

The PDF welding report (single or multiple) show the welding area map if GPS coordinates were available. The maps, by default, are created as satellite image using a middle zoom level and inserting a marker in the welding position. It's possible that depending on the welding zone, these parameters will be not the best one for a good GPS position analysis. Opening the menu "Preferences" -> "Map Options" the following window will be shown:



Here the user can choose three parameters: the zoom value, if show or not the position marker and the map type between satellite and roadmap.

The new parameters will be saved pressing the Confirm button.

## 6.12 Check Device Compatibility

If the user needs to verify the compatibility of a new device (smartphone, camera, etc.), He can use the Check Device function. Pressing the menu File -> Check Camera, a new window will be shown. Here the user has to press the "Browse" button to choose a picture to check, taken with the new device.

If the device is compatible with the application, will be shown a confirmation icon and a list with the following information:

- Picture date
- Picture time
- Device manufacturer
- Device model



If the device is not compatible with the application, an error icon and an error message will be shown.

## 6.13 Language selection

The MSA Welding Book application by default is configured to work English. However, the user can select the interface and the PDF language separately.

Pressing the menu Preferences -> Language, a new window will be shown. Here the user has can choose the two languages from a list.



When the selection is finished press the Confirm button to validate the new settings or Exit to close the window.

## 6.14 Proxy Setting

Proxy settings are used to tell MSA Welding Book the network address of an intermediary server (known as a proxy server) that is used between the application and the Internet on some networks. Changing proxy settings is something you usually only have to do if you are connecting to the Internet through a corporate network.

An incorrect or a missing setting can prevent the maps and welding addresses download.

Pressing the menu Preferences -> Proxy Setting the following window will be shown.



By default the Proxy setting is disabled, the user has to select Manual to enable it.

As the Proxy Setting is moved to enable, the field IP Address and Port will be activated. Insert the correct value.

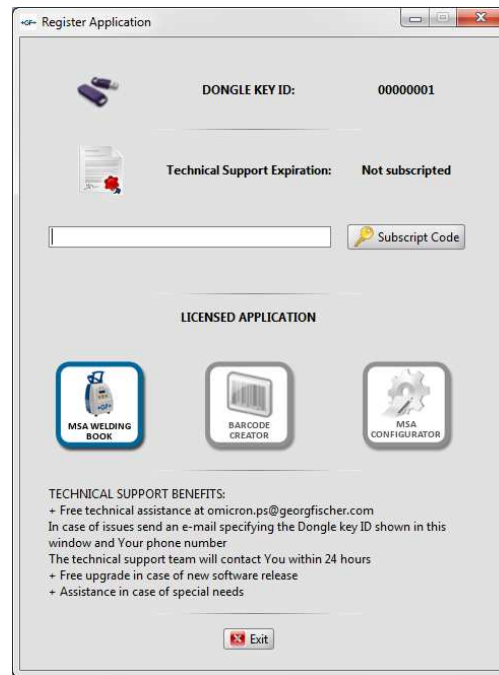
If the Proxy server needs an authentication, check the *Server Authentication* checkbox and write the correct value.

As the parameters are inserted, the user can verify if they're correct just pressing the *Check* button. Pressing the *Confirm* button the inserted parameters will be saved.

## 6.15 Product Registration

The MSA Welding Book application, by default, is provided with a set of permissions. The user can decide to upgrade the software activating new applications or to subscript/renew the annual technical support contract. In both cases, the user will receive by email a sixteen characters code for each license to upgrade.

Opening the menu "?" -> "Register Application" the following window will be shown:



Here the user can see the USB Dongle Key ID code, if subscribed the technical support contract expiration date and the licensed application.

To upgrade the software simply copy the sixteen characters code in the text field and press the button "Subscript Code". The application will apply the license with the new policies and send an automatic email to the technical support team in order to facilitate an eventual technical intervention. If the application cannot send the email (ex. the PC is not connected to internet) a button will be shown to allow the user to send the email when the conditions for which the message can be sent are available.

The technical support expiration date and the list of the licensed application will be automatically updated.

## 6.16 Close

The user can quit the application clicking on the  button.

## 7 Welding procedure

The procedure to stick on for a safe data and pictures collection is the following.

1. First verify that date and time are the same on the PDA and the MSA340 with a maximum difference of one minute. If the synchronization is not ensured, the application could not merge welding and pictures with the required accuracy.
2. When the operator start the job, he can take pictures even before the machine is turned on. These pictures are associated to the first welding of the day.
3. The fusion process can finish with a good result or with an error. In both cases the user can decide how to work.
  - 3.1. Welding process OK: at the end of the fusion process, the machine display will show the message "End of current jointing?" Here the operator must confirm with ENTER the completion of the current welding, permanently closing the protocol.
  - 3.2. Welding Error: in case of error on the machine display will be shown two messages: one with the error code and another with the message "End of current jointing?" Here the operator must confirm with ENTER the completion of the current welding, permanently closing the protocol.
4. If necessary shut down the MSA340 and move to the next welding location.
5. At the end of the job, export the csv file from the MSA340 machine to an USB stick and come back to the office. Create a folder on a PC for each welding machine used, copy in the csv file and the pictures taken at the work field.
6. Open *MSA Welding Book*, import the data transferred on the PC for each MSA340 and analyze/combine/print the results.





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